Appl. No. _10/212541___
Amdt. Dated 9/30/04
Reply to Office action of _6/29/04___

REMARKS/ARGUMENTS

Claims 1-24 remain in this application.

Objections to the Disclosure

Applicant thanks the examiner for pointing out the typing error in page 4, line 11 and the paragraph has been replaced accordingly after changing "contact layers 110 " to "cathode layers 110".

Applicant therefore submits that, by changing the paragraph of page 4 of the specification, the objection to the disclosure is successfully overcome.

Objections to the drawing

The examiner suggested changing reference sign "122" to 120". The proposed drawing correction (replacement sheet attached) incorporates the change suggested by the examiner.

Applicant therefore submits that, by so amending Fig. 1, the objection to the drawing is successfully overcome.

Rejections under 35 U. S. C 103 (a)

Claims 1-6 and 13-18 have been rejected as unpatentable over Draper et al., US 5273838 in view of Nishioka, US 5543241. Applicant respectfully traverses the rejection.

Draper et al. discloses a tubular shape fuel cell in Figs 1-4. Draper et al. do not disclose a fuel cell having a polygonal cross section. Nishioka discloses a planar fuel cell of polygonal structure (Figs. 6-8). Nishioka describes a plurality of sets (col. 10, line 3-12). The sets are layered to form three-dimensional matrices. The sets are layers in such a manner that the cathode surface and anode surface will oppose each other with the anode gas manifold or cathode gas manifold being interposed therebetween.

In contrast, in the present application the tubular structure has a tubular shape fuel cell having a polygonal cross section that provides the highest power density, good manufacturability and strength. The sealing arrangement and the process of connecting a plurality of fuel cells in a planar and tubular configuration are significantly different. So Nishioka neither teaches nor suggest a tubular fuel cell with polygonal cross section.

Therefore, Applicants respectfully submit that nowhere do the applied references taken either singly or in combination discuss the desirability of manufacturing a tubular cell with polygonal cross section. Applicants submit that it would not have been obvious to one of ordinary skill in the art at the time of the invention to use the concept of a tubular configuration of a fuel cell having a polygonal cross section, in light of the teachings provided in the combination of Draper in view of Nishioka.

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a prima facie case of obviousness. Establishing a prima facie case of obviousness requires that all elements of the invention be disclosed in the prior art.

Applicants submit that Obviousness cannot be established absent a teaching or suggestion in the prior art to produce the claimed invention. Applicants submit that the mere fact that references may be combined or

modified does not render the resultant modification or combination obvious unless the prior art suggests the desirability of the modification or combination.

As stated above, nowhere do the applied references teach, suggest or disclose a tubular fuel cell with polygonal cross section.

Since the combination of Draper and Nishioka does not disclose or suggest a tubular fuel cell with polygonal cross section, as set forth in claims 1, 5, 13, 17, and 18, Applicants submit that these claims are patentably distinguishable over the combination. Thus, Applicants submit that the Examiner has failed to provide a basis in the art for combining the applied references that would support a prima facie case of obviousness. Accordingly, Applicants respectfully submit that the claimed invention, as currently recited in independent claims 1, 5, 13, 17, and 18 define allowable subject matter over the applied art. Withdrawal of the rejections is respectfully requested, and allowance of claims 1, 5, 13, 17, and 18 is respectfully solicited. Claims 2-4, 6, and 14-16 depend directly or indirectly from claims 1, 5, 13, 17, and 18 and are therefore similarly allowable through this dependency. Accordingly, Applicants request that the Examiner reconsider and remove the §103(a) rejection of these claims.

In view of the foregoing remarks and amendments, Applicants request that the Examiner reconsider this application and allow claims 1-6 and 13-18.

Claims 7-12 and 19-24 have been rejected as unpatentable over Draper et al., US 5273838 in view of Nishioka, US 5543241 and in view of Di Croce et al, US 5258240. Applicant respectfully traverses the rejection.

Draper et al. disclose a tubular shape fuel cell in Figs 1-4. Draper et al. do not disclose a fuel cell having a polygonal cross section. Nishioka discloses a planar fuel cell of polygonal structure (Figs. 6-8). Nishioka describes a plurality of sets (col. 10, line 3-12). The sets are layered to form three dimensional matrices. The sets are layers in such a manner that the cathode surface and anode surface will oppose each other with the anode gas manifold or cathode gas manifold being interposed therebetween.

In contrast, in the present application the tubular structure has a tubular shape fuel cell having a polygonal cross section that provides the highest power density, good manufacturability and strength. The sealing arrangement and the process of connecting a plurality of fuel cells in a planar and tubular configuration are significantly different. So Nishioka neither teaches nor suggest a tubular fuel cell with polygonal cross section.

Therefore, Applicants respectfully submit that nowhere do the applied references taken either singly or in combination discuss the desirability of manufacturing a tubular cell with polygonal cross section. Applicants submit that it would not have been obvious to one of ordinary skill in the art at the time of the invention to use the concept of a tubular configuration of a fuel cell having a polygonal cross section, in light of the teachings provided in the combination of Draper in view of Nishioka.

Di Croce discloses a cathode bus and an anode bus in a tubular fuel cell, but does not disclose or teach a fuel cell stack or method of manufacturing a fuel cell stack having a tubular structure with polygonal cross section.

Since the combination of Draper, Nishioka and DiCroce does not disclose or suggest a tubular fuel cell stack with polygonal cross section or a method of manufacturing the same, as set forth in claims 7, 11, 19 and 23,

Applicants submit that these claims are patentably distinguishable over the combination. Thus, Applicants submit that the Examiner has failed to provide a basis for combining the applied references that would support a prima facie case of obviousness. Accordingly, Applicants respectfully submit that the claimed invention, as recited in independent claims 7, 11, 19 and 23 define allowable subject matter over the applied art. Withdrawal of the rejections is respectfully requested, and allowance of claims 7, 11, 19 and 23 is respectfully solicited. Claims 8-10, 12, 20-22 and 24 depend directly or indirectly from claims 7, 11, 19 and 23 and are therefore believed to be allowable through this dependenoy. Accordingly, Applicants request that the Examiner reconsider and remove the §103(a) rejection of these claims.

In view of the foregoing remarks and amendments, Applicants request that the Examiner reconsider this application and allow claims 7-12 and 19-24.

Accordingly, Applicant respectfully submits that the claimed invention defines allowable subject matter over the applied art. Withdrawal of the rejections is respectfully requested, and allowance of the claims is respectfully solicited.

Summary

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Should the Examiner believe that anything further is needed to place the application in even better condition for allowance, the Examiner is requested to contact applicant's undersigned representative at the telephone number below.

Respectfully submitted,

By 

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